Remarks

Claims 1-8 are pending in the application. Claim 1 has been amended. Reconsideration of the application is respectfully requested for the reasons set forth herein.

1. The Examiner has objected to the disclosure because of an informality. The Examiner stated that on page 4, line 8, a reference to "short sides 9" and "long sides 7" is made. The Examiner further stated that throughout the specification and drawings reference numeral 7 identified the short sides and reference numeral 9 identified the long sides. On page 4, lines 6-9 read as follows: "In the embodiment example illustrated by Figures 2, 3, and 4, the frame 19, of 16/9 format, comprises a pair of long sides 9 and a pair of short sides 7." Because it appears that on page 4, line 8, the pair of long sides is correctly identified by the reference numeral 9, and the pair of short sides is correctly identified by the reference numeral 7, the Applicant has not made the requested change to the disclosure. The Applicant invites the Examiner to contact the Applicant in regard to this discrepancy if necessary.

2. The Examiner has rejected claim 1 under 35 U.S.C. 112, second paragraph, for failing to particularly point out and distinctly claim the subject matter, which the Applicant regards as the invention. The Examiner stated that in claim 1 the language "for example" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. Claim 1 has been amended to remove the language "for example" from the claim. The rejection of Claim 1 under 35 U.S.C. 112, second paragraph, is respectfully overcome.

3. The Examiner has rejected claims 1 and 2 under 35 U.S.C. 102(a) as being anticipated by Adamski (U.S. Patent No. 3,986,072).

In regard to claim 1, the Examiner stated that Adamski discloses a color cathode-ray tube 2 comprising a glass front faceplate 6, a screen of luminescent materials 7 and a color-selection mask 12. The color-selection mask having a rectangular frame defined by a pair of opposed long sides B, D and a pair of opposed short sides A, C, as shown in Figure A. An edge in the form of a metal plate 28 is substantially parallel to the surface of the mask. The frame/mask assembly is held within the faceplate 6 by support means engaging pins 27. Said means incorporate a metal piece including a first portion 64 extending over one of the surfaces of the metal part and a second portion 60 extending in a direction substantially perpendicular to the surface of the mask. The Examiner, therefore, concluded that Adamski discloses all of the elements of claim 1.

Contrary to the Examiner's statement that all elements are disclosed in the Adamski reference, Adamski does not teach or suggest all of the claim limitations of amended claim 1. Claim 1 has been amended to include the claim limitation that the metal piece and the support means have coefficients of thermal expansion that cause the sides having the first portion to deform when heated such that ends of the sides not having the first portion approach each other to reduce tension in the mask during heating. Adamski teaches a color cathode ray tube 2 incorporating a mask suspension system. The mask suspension system includes four suspension devices 26, one at each corner of a torsionally flexible, non-self rigid mask 12. The mask 12 is easily flexed about its diagonals and conforms to the contour of the faceplate 6 when mounted. Because Adamski does not teach or suggest a support means attached to a metal piece having coefficients of thermal expansion that cause the sides having the support means to deform when heated such that ends of the sides not having the support means approach each other to reduce

tension in the mask during heating, the rejection under 35 U.S.C. 102(a) is respectfully overcome.

Claim 2 depends from independent claim 1. As previously discussed, Adamski does not teach or suggest all of the limitations of claim 1. Specifically, a metal piece and support means having coefficients of thermal expansion that cause the sides having the first portion to deform when heated such that ends of the sides not having the first portion approach each other to reduce tension in the mask during heating. Because Adamski does not teach or suggest all of the claim limitations of dependant claim 2, the rejection under 35 U.S.C. 102(a) is respectfully overcome.

4. The Examiner has rejected claims 1-3 and 5-8 under 35 U.S.C. 102(e) as being anticipated by Lakshmanan et al. (U.S. Patent No. 5,982,085).

In regard to claim 1, the Examiner stated that Lakshmanan discloses in figure 1 a color cathode-ray tube comprising a glass front faceplate 15, a screen of luminescent materials 18, a color-selection mask 22, a frame 25 to which the mask is fixed, the frame being of a substantially rectangular shape defined by a pair of opposed long sides 33 and a pair of opposed short sides 36, including an edge 26 in the form of a metal part substantially parallel to the surface of the mask. The frame/mask assembly being held within the faceplate by support means engaging pins 14. Said means incorporate a metal piece including a first portion 27 extending over one of the surfaces of the said metal part and a second portion 40 extending in a direction substantially perpendicular to the surface of the mask. The Examiner, therefore, concluded that Lakshmanan et al. discloses all of the claim limitations of claim 1.

Contrary to the Examiner's statement that all elements are disclosed in the Lakshmanan et al. reference, Lakshmanan et al. does not teach or suggest all of the claim limitations of

amended claim 1. Claim 1 has been amended to include the claim limitation that the metal piece and the support means have coefficients of thermal expansion that cause the sides having the first portion to deform when heated such that ends of the sides not having the first portion approach each other to reduce tension in the mask during heating. Lakshmanan et al. teaches a mask 22 and a frame 25. Two long diaphragms 33 and two short diaphragms 36 are welded to corner brackets 26 to form a rectangle. Each of the diaphragms 33, 36 has a thickness of 0.2mm to 0.4 mm, which closely matches the thickness of the mask 22 to assure uniform expansion of the assembly during warm-up. The mask 22 and diaphragms 33, 36 are preferably low carbon steel. The corner brackets 26 are low carbon steel, nickel plated low carbon steel or stainless steel. Because Lakshmanan et al. does not teach or suggest the use of materials having coefficients of thermal expansion in relation to each other that produce a specified result, Lakshmanan et al. does not teach or suggest all of the claim limitations of claim 1. The rejection of claim 1 under 35 U.S.C. 102(e) is respectfully overcome.

Claims 2-3 and 5-8 depend from independent claim 1. As previously discussed, Lakshmanan et al. does not teach or suggest all of the claim limitations of claim 1. Specifically, a metal piece and support means having coefficients of thermal expansion that cause the sides having the first portion to deform when heated such that ends of the sides not having the first portion approach each other to reduce tension in the mask during heating. Because Lakshmanan et al. does not teach or suggest all of the claim limitations of dependant claims 2-3 and 5-8, the rejection under 35 U.S.C. 102(a) is respectfully overcome.

5. The Examiner has rejected claims 3 and 4 under 35 U.S.C. 103(a) over Lakshmanan et al. (U.S. Patent No. 5,982,085) in view of Sakata et al. (U.S. Patent No. 5,214,349).

In regard to claim 3, the Examiner stated that Lakshmanan et al. discloses a CRT comprising a glass front faceplate 15, a screen of luminescent materials 18, a color-selection mask 22, a frame of rectangular shape 25, and an edge 26 in the form of a metal part. The frame/mask assembly being held by support means engaging pins 14, which incorporate a metal piece including a first portion 27 extending over one of the surfaces of said metal part and a second portion 40 extending in a direction substantially perpendicular to the surface of the mask. Lakshmanan et al. fails to disclose the limitation of "the mask being held under tension between the long sides of the frame." The Examiner further stated that Sakata et al. discloses a CRT comprising a color selection mask 11 and a frame of a substantially rectangular shape. The mask/frame assembly being held within the faceplate by support means engaging pins 26. Tension is applied between the long sides of the frame. This tension contributes to the prevention of the resonance of the filaments 11 with an external vibration, thereby producing a high-definition picture. The Examiner, therefore, concluded that it would have been obvious to anyone of ordinary skill in the art at the time the invention was made to use Sakata et al.'s teaching to modify the frame/shadow assembly of Lakshmanan et al. to apply a tension at the long opposite sides, since Sakata et al. teaches that this tension contributes to the prevention of the resonance of the mask with an external vibration, thereby producing a high-definition picture.

Contrary to the Examiner's statement, the combination of Lakshmanan et al. in view of Sakata et al. does not teach or suggest all the elements in claim 3. Claim 3 depends upon independent claim 1. As previously discussed, Lakshmanan et al. does not teach or suggest a metal piece and support means having coefficients of thermal expansion that cause the sides having the first portion to deform when heated such that ends of the sides not having the first portion approach each other to reduce tension in the mask during heating. The combination of

Lakshmanan et al. in view of Sakata et al., therefore, does not teach or suggest all of the claim limitations of dependant claim 3. The rejection of claim 3 under 35 U.S.C. 103(a) is respectfully overcome.

In regard to claim 4, the Examiner stated that Lakshmanan discloses the CRT of claim 1 except "the sides including an edge in the form of a metal part substantially parallel to the surface of the mask being the short sides of the frame." In the same field of endeavor, however, Sakata et al. teaches the equivalence of placing the support pins at the corners or arranging them toward the inner part of the panel in the vicinity of the corner portion, as shown in Figures 27-29. In Figure 29, the support pins are placed on the short sides of the faceplate. The Examiner, therefore, concluded that it would have been obvious to anyone of ordinary skill in the art at the time the invention was made to use Sakata et al.'s teaching to modify the frame/shadow assembly of Lakshmanan et al. since Sakata et al. teaches that it is equivalent to place the support pins at the corners or arrange them toward the inner part of the panel in the vicinity of the corner portion.

Contrary to the Examiner's statement, the combination of Lakshmanan et al. in view of Sakata et al. does not teach or suggest all the elements in claim 4. Claim 4 depends upon independent claim 1. As previously discussed, Lakshmanan et al. does not teach or suggest a metal piece and support means having coefficients of thermal expansion that cause the sides having the first portion to deform when heated such that ends of the sides not having the first portion approach each other to reduce tension in the mask during heating. The combination of Lakshmanan et al. in view of Sakata et al., therefore, does not teach or suggest all of the claim limitations of dependant claim 4. The rejection of claim 4 under 35 U.S.C. 103(a) is respectfully overcome.

In view of the amendments presented herein, Applicant believes this application to be in condition for allowance. Reconsideration and passage to issue is respectfully requested.

The fee for the one month extension of time may be charged to deposit order account number 07-0832.

Respectfully submitted,

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Patent Operation
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Version with Markings to Show Changes Made

1. (Amended) A color cathode-ray tube comprising a glass faceplate on which is deposited a screen of luminescent materials, a color-selection mask arranged close to the screen, a frame to which the mask is fixed and which holds it under tension along at least one direction, said frame being of a substantially rectangular shape defined by a pair of opposed long sides and a pair of likewise opposed short sides; at least two sides each include an edge in the form of a metal part substantially parallel to the surface of the mask, the mask/frame assembly being held within the faceplate by support means engaging pins fixed to the faceplate, wherein at least two said means each incorporate a metal piece including a first portion extending over one of the surfaces of said metal part, said first portion being secured[, for example] by welding[,] to the metal part and at least one second portion extending in a direction substantially perpendicular to the surface of the mask, said metal piece and said support means having coefficients of thermal expansion that cause the sides having the first portion to deform when heated such that ends of the sides not having the first portion approach each other to reduce the tension in the mask during heating.